Maximal oxygen uptake (VO2max) is the fundamental measure of exercise physiology, and has been described as “the single most influential concept in modern exercise physiology”. VO2max is widely recognized as both a representation of the functional limitations of the cardiovascular system as well as a measure of aerobic fitness. Recently, heated debate concerning the concept of VO2max has led to a re-examination of the assumptions and findings of classic research by Dr. A.V. Hill and colleagues. Our research focused on identifying objective criteria that could be used to verify the accomplishment of a valid VO2max test.